

FORM PTO-1 (REV 11-2000) (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 049140.000002
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR) 10/089897
INTERNATIONAL APPLICATION NO PCT/BE00/00116	INTERNATIONAL FILING DATE 05.10.00 (05 October 2000)	PRIORITY DATE CLAIMED 08.10.99 (08 October 1999)
TITLE OF INVENTION CALCIUM OXIDE PRODUCT AND METHOD FOR MAKING SAME		
APPLICANT(S) FOR DO/EO/US S.A. Lhoist Recherche et Developpement		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below. 4. <input type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c) (2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)). 11. <input checked="" type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/IPEA/409). 12. <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210). 		
Items 13 to 20 below concern document(s) or information included:		
<ol style="list-style-type: none"> 13. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 14. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 15. <input type="checkbox"/> A FIRST preliminary amendment. 16. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 17. <input type="checkbox"/> A substitute specification. 18. <input checked="" type="checkbox"/> A change of power of attorney and/or address letter. 19. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825. 20. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 21. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 22. <input checked="" type="checkbox"/> Certificate of Mailing by Express Mail 23. <input type="checkbox"/> Other items or information: 		

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.53(a)(2))		INTERNATIONAL APPLICATION NO.		ATTORNEY'S DOCKET NUMBER	
10/089897		PCT/BE00/00116		049140.000002	
24. The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) : <input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1040.00 <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00 <div style="text-align: right;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>				CALCULATIONS PTO USE ONLY	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).				\$0.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	10 - 20 =	0	x \$18.00	\$0.00	
Independent claims	2 - 3 =	0	x \$84.00	\$0.00	
Multiple Dependent Claims (check if applicable).				<input type="checkbox"/> \$0.00	
TOTAL OF ABOVE CALCULATIONS =				\$890.00	
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.				\$445.00	
SUBTOTAL =				\$445.00	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).				\$0.00	
TOTAL NATIONAL FEE =				\$445.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).				<input type="checkbox"/> \$0.00	
TOTAL FEES ENCLOSED =				\$445.00	
				Amount to be:	\$
				refunded	\$
				charged	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$445.00 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-0259 A duplicate copy of this sheet is enclosed. d. <input type="checkbox"/> Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Charles D. Gunter, Jr. Reg. No. 29,386 Bracewell & Patterson, LLP 201 Main Street Fort Worth, Texas 76102 USA (817) 332-8143 </div>					
				SIGNATURE	
				Charles D. Gunter, Jr.	
				NAME	
				29,386	
				REGISTRATION NUMBER	
				April 5, 2002	
				DATE	

10089897 10/089897

JC13 Rec'd PCT/PTO 05 APR 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 049140.000002

In re Application of
Laudet et al.

Int'l Appl. No.: PCT/BE00/00116

Int'l Filing Date: 5 October 2000

Publication Date: 19 April 2001

For: CALCIUM OXIDE PRODUCT AND METHOD FOR MAKING SAME

PRELIMINARY AMENDMENT

Box: PCT
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to the examination of the application, please enter the following amendments:

"EXPRESS MAIL" NO. EV 085442995 US

I hereby certify that this paper or fee is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated below and is addressed to the Hon. Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Date of Deposit:

April 5, 2002 By: Sarah Garner

In the Claims: Please cancel the original Claims 1-10 as present in the PCT application and add the following Claims 11-20:

11. A product based on calcium oxide in the form of coarse grains, comprising a protective film coating the grains, based on at least one film-forming compound, which is solid at room temperature and which, during application to the grains, is in solution or emulsion in a vaporisable aqueous phase.

12. A product according to Claim 11, wherein the said aqueous phase is water and the product also comprises, on the surface of the grains, a thin layer of hydrated lime which is coated with the said hardened protective film.

13. A product according to Claim 11, wherein the film-forming compound, solid at room temperature, is chosen from the group consisting of vinyl homopolymers or copolymers, acrylic homopolymers or copolymers, paraffins, homopolymers or copolymers of butadiene, isoprene and styrene, silicones and mixtures thereof.

14. A product according to Claim 11, which is formed on the basis of at least one substance complying with the formula $x\text{CaO} \cdot (1-x)\text{MgO}$, where x is equal to or less than 1 but greater than 0.

15. A product according to Claim 11, in the form of grains with a size of at least 10 mm.

16. A product according to Claim 11, wherein the protective film has a thickness of less than 100 μm .

17. A method of treating a product based on calcium oxide in the form of coarse grains, comprising

- application, on the surface of the said grains, of a solution or emulsion in an aqueous phase of at least one film-forming compound, solid at room temperature,

- evaporation of the aqueous phase, and
- hardening of a protective film of the said at least one film-forming compound, coating the grains.

18. A method according to Claim 17, comprising, during the above mentioned application, an exothermic reaction between some of the aqueous phase and the calcium oxide contained in the grains, formation of a thin layer of hydrated lime on the surface of the grains, and instantaneous evaporation of the remaining aqueous phase caused by an increase in temperature resulting from the said exothermic reaction, which gives rise to a rapid hardening of the said protective film.

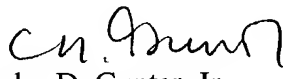
19. A method according to Claim 17, comprising, during and/or after the said application, a heating of the product in order to evaporate the aqueous phase.

20. A method according to Claim 17, wherein the application is implemented by spraying, nebulisation or atomisation of the said solution or emulsion on the said grains.

REMARKS

The original claims have been canceled and replaced with new Claims 11-20 which eliminate the multiple dependencies present in the original PCT claims. Please examine the case on the basis of the newly submitted Claims 11-20.

Respectfully submitted,


Charles D. Gunter, Jr.
Reg. No. 29,386
BRACEWELL & PATTERSON, LLP
201 Main Street, Suite 1600
Fort Worth, Texas 76102
(817) 332-8143

ATTORNEY FOR APPLICANT

PRODUCT BASED ON CALCIUM OXIDE
AND A METHOD OF MANUFACTURING IT

The present invention relates to a product based on calcium oxide in the form of coarse grains and a method of manufacturing such a product.

In the present invention, product based on calcium oxide means not only quick lime CaO , but also unhydrated dolomite CaO.MgO , and all intermediaries $x\text{CaO}.(1-x)\text{MgO}$, where x is equal to or less than 1 but greater than 0.

These products based on calcium oxide in the form of coarse grains are in the form of grains whose size is greater than 10 mm, and is preferably between 10 and 70 mm.

The present invention therefore does not relate to the processing of lime in powder form or with fine grains, as provided for for example in JP-58180225, JP-56050115 and JP-61261242.

It is possible to obtain products based on such coarse grains by baking a raw material, such as for example limestone, and then screening the product obtained, known as rock lime. Rock lime according to the invention means not only this, but also rock dolomite, and intermediates such as dolomitic rock lime. It is also possible to obtain products based on calcium oxide in the form of coarse grains within the meaning of the invention by compacting fine particles of quick lime, unhydrated dolomite or the aforementioned intermediates, and forming from this material small briquettes or tablets of the size indicated above.

Rock lime generates fines at the various steps of its handling, from its removal from the furnace at the end of the baking of the raw material until it is used by the user, for example as an additive in steel making converters. The fines are produced by fragmentation of the lime grains, when they fall during the loading or unloading of a lorry or silo, or by attrition during friction between the lime grains during transportation by lorry or on conveyer belts.

Likewise the aforementioned briquettes based on calcium oxide refragment during their handling and more or less rapidly reform a new fraction of fines.

Fines, within the meaning of the invention, means any particle whose size is less than the nominal size of the product used. For example, if the user requires a product with a granulometry from 10 to 70 mm, the fines will be formed from particles with a size of less than 10 mm. In a case of this type, the proportion of fines (0 to 10 mm) represents $\pm 3\%$ of the mass of rock lime, at the discharge from the furnace. It may attain 8 to 10% after unloading at the user. If for example a steelmaker is involved, the proportion of fines may reach 15 to 25% at the time of feeding into the converter. When these fines fly off during the transportation and handling of the lime, this represents not only a considerable economic loss, but also constitutes a not insignificant source of pollution, whose treatment is becoming more and more expensive.

It is obviously possible to reduce the emission of fines by screening operations and an improvement to infrastructures, in order to reduce the height of the falls.

The aim of the present invention is to develop a product based on calcium oxide in the form of coarse grains which offers improved mechanical strength and consequently a reduction in

the attrition of material and its fragmentation by impacts and therefore a reduction in the emission of dust during the handling thereof. Another aim of it is to produce a method of manufacturing a product based on calcium oxide in the form of coarse grains which improves the said mechanical strength of the product. Advantageously, the product according to the invention must be able to be in a form impermeable to moisture in order to improve its storage properties.

These problems have been resolved, according to the invention, by a product based on calcium oxide in the form of coarse grains which has a protective film coating the grains, based on at least one film-forming compound, which is solid at room temperature and which, during application to the grains, is in solution or emulsion in a vaporisable aqueous phase.

The present invention therefore consists of acting on the material by coating grains with a protective film which will reduce the phenomena of attrition and fragmentation of the grains, this film solidifying when the aqueous phase evaporates.

According to an advantageous embodiment of the invention, the said aqueous phase is water and the product also comprises, on the surface of the grains, a thin layer of hydrated lime which is coated with the said hardened protective film.

A reaction of hydration of CaO into Ca(OH)_2 occurs at the surface of the grains based on calcium oxide during the application of the aqueous solution or emulsion of the film-forming compound. This reaction is sufficiently exothermic to raise the temperature locally, up to about one hundred degrees Celsius, and to almost instantaneously evaporate the water which has not yet reacted, which affords a very rapid hardening of the surface protective film. The speed of the coating is

favourable in an industrial process since it reduces the time taken for obtaining an easily handleable product. In addition, the water, in evaporating, does emit any harmful, flammable or explosible vapours and therefore represents an entirely preferential liquid phase. It should also be remarked that thin layer of hydrated lime means according to the invention not only a layer of pure hydrated lime but also hydrated lime partially containing hydrated magnesia.

The film-forming compounds according to the invention must be soluble or capable of forming an emulsion in an aqueous phase and be capable of hardening after the evaporation thereof, forming a solid phase which, at room temperature, coats the grains. As film-forming compounds of this type it is in particular possible to cite, by way of non-limiting examples, vinyl homopolymers or copolymers, such as polyvinyl alcohol, polyvinyl acetate, a vinyl ethylene-acetate copolymer, acrylic homopolymers or copolymers, such as C_1 - C_{18} alkyl esters of acrylic acid or methacrylic acid, paraffins, notably short-chain paraffins, homopolymers or copolymers of butadiene, isoprene and styrene, silicones or mixtures of these compounds. A vinyl ethylene-acetate copolymer has proved to be particularly favourable as a film-forming compound according to the invention. In particular silicones or polyisoprene are envisaged for producing grains which are not only mechanically strong but also relatively impermeable to water.

Advantageously, in the hardened state, this film-forming compound forms around the grains a film of protective coating which has a thickness of less than 100 μm .

Details and particularities of the product according to the invention are also indicated in the following Claims 1 to 6.

The invention also concerns a method of treating a product based on calcium oxide in the form of coarse grains.

According to the invention, this method comprises

- an application, on the surface of the said grains obtained, of a solution or emulsion in an aqueous phase of at least one film-forming compound, solid at room temperature,
- evaporation of the aqueous phase, and
- hardening of a protective film of the said at least one film-forming compound, coating the grains.

This method is particularly simple, inexpensive to implement, and has above all the advantage of low consumption in a coating environment. Advantageously, after evaporation of the aqueous phase, a protective solid film is obtained with a thickness of only a few tens of micrometres.

According to a preferred embodiment of the invention, the method comprises, during the above mentioned application, an exothermic reaction between part of the aqueous phase and the calcium oxide contained in the grains, formation of a thin layer of hydrated lime on the surface of the grains, and instantaneous evaporation of the remaining aqueous phase caused by an increase in temperature resulting from the said exothermic reaction, which gives rise to a rapid hardening of the said protective film.

According to one advantageous embodiment, the application is implemented by spraying, nebulisation or atomisation of the said solution or emulsion. It is thus possible to spray, nebulise or atomise the solution or emulsion on the surface of the grains, for example while they are being transported on a

Details and particularities of the method according to the invention are also to be taken from Claims 7 to 10 which follow.

Example 1

The resistance to attrition of the rock lime was measured before and after treatment according to the following protocol:

At the end of this test, that is to say after 275 rotations, the percentage of particles less than 10 mm was determined, that is to say 17.8% for the non-coated rock lime and 6.8% for the lime coated according to the method described above. This treatment therefore reduces the emission of dust by 62%.

Example 2

24 g of an aqueous solution of short-chain paraffins with a cationic emulsifier, whose dry matter content was between 35 and 38% (Mobilcer 638 from Mobil + 20% water), was sprayed onto 2 kg of rock lime of size 10/55. This treatment reduced the emission of dust by 10.5% compared with the untreated lime sample under the attrition test conditions described in Example 1.

Example 3

24 g of an aqueous solution of paraffins, obtained in the presence of an anionic surfactant and whose dry matter content was between 35 and 38% (Mobilcer X from Mobil + 20% water), was sprayed onto 2 kg of rock lime of size 10/55. This treatment reduced the emission of dust by 23.5% compared with the sample of untreated lime under the attrition test conditions described in Example 1.

Example 4

36 g of an aqueous solution of vinyl ethylene-acetate copolymer, whose dry matter content was 27.6%, with a mineral filler of 5% calcium hydroxide, was sprayed onto 2 kg of rock lime of size 10/55.

This treatment reduced the emission of dust by 61.4% compared with the sample of untreated lime under the attrition test conditions described in Example 1.

Example 5

Samples of lime were also compared on the basis of a drop test.

This test consisted of subjecting 5 kg of rock lime, whose grains with a size of less than 10 mm had been eliminated by sieving, to 4 successive drops from a height of 2 mm, through a 40 cm diameter tube, onto a metallic surface. At the end of these 4 drops, the percentage of fines less than 10 mm was determined.

After the 4 drops, respectively 12.7% of fines less than 10 mm for the untreated lime was obtained.

When a lime treated in accordance with Example 1 was subjected to this test, on the other hand only 6.8% fines was obtained.

This treatment therefore reduces by 46.5% the level of fines less than 10 mm caused by the fragmentation of the grains during their fall under the test conditions.

It must be understood that the present invention is in no way limited to the examples and embodiments given above and that many modifications can be made thereto without departing from the scope of the accompanying claims.

It is for example possible to provide, as a composition for coating the rock lime, an aqueous solution, for example polyvinyl alcohol.

CLAIMS

1. A product based on calcium oxide in the form of coarse grains, characterised in that it comprises a protective film coating the grains, based on at least one film-forming compound, which is solid at room temperature and which, during application to the grains, is in solution or emulsion in a vaporisable aqueous phase.
2. A product according to Claim 1, characterised in that the said aqueous phase is water and in that the product also comprises, on the surface of the grains, a thin layer of hydrated lime which is coated with the said hardened protective film.
3. A product according to one or other of Claims 1 and 2, characterised in that the film-forming compound, solid at room temperature, is chosen from the group consisting of vinyl homopolymers or copolymers, acrylic homopolymers or copolymers, paraffins, homopolymers or copolymers of butadiene, isoprene and styrene, silicones and mixtures thereof.
4. A product according to any one of Claims 1 to 3, characterised in that it is formed on the basis of at least one substance complying with the formula $x\text{CaO} \cdot (1-x)\text{MgO}$, where x is equal to or less than 1 but greater than 0.
5. A product according to any one of Claims 1 to 4, characterised in that it is in the form of grains with a size of at least 10 mm.
6. A product according to any one of Claims 1 to 5, characterised in that the protective film has a thickness of less than 100 μm .

7. A method of treating a product based on calcium oxide in the form of coarse grains, characterised in that it comprises

- an application, on the surface of the said grains, of a solution or emulsion in an aqueous phase of at least one film-forming compound, solid at room temperature,
- evaporation of the aqueous phase, and
- hardening of a protective film of the said at least one film-forming compound, coating the grains.

8. A method according to Claim 7, characterised in that the method comprises, during the above mentioned application, an exothermic reaction between some of the aqueous phase and the calcium oxide contained in the grains, formation of a thin layer of hydrated lime on the surface of the grains, and instantaneous evaporation of the remaining aqueous phase caused by an increase in temperature resulting from the said exothermic reaction, which gives rise to a rapid hardening of the said protective film.

9. A method according to one or other of Claims 7 and 8, characterised in that the method comprises, during and/or after the said application, a heating of the product in order to evaporate the aqueous phase.

10. A method according to any one of Claims 7 to 9, characterised in that the application is implemented by spraying, nebulisation or atomisation of the said solution or emulsion on the said grains.

(12) DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITÉ DE COOPÉRATION
EN MATIÈRE DE BREVETS (PCT)(19) Organisation Mondiale de la Propriété
Intellectuelle
Bureau international(43) Date de la publication internationale
19 avril 2001 (19.04.2001)

PCT

(10) Numéro de publication internationale
WO 01/27031 A1(51) Classification internationale des brevets⁷: C01F 11/02(74) Mandataires: CLAEYS, Pierre etc.; Gevers & Vander
Haeghen, Rue de Livourne 7, B-1060 Bruxelles (BE).

(21) Numéro de la demande internationale:

PCT/BE00/00116

(81) États désignés (*national*): AE, AG, AL, AM, AT, AU, AZ,
BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (modèle
d'utilité), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZW.

(22) Date de dépôt international: 5 octobre 2000 (05.10.2000)

(25) Langue de dépôt: français

(26) Langue de publication: français

(30) Données relatives à la priorité:
9900667 8 octobre 1999 (08.10.1999) BE(84) États désignés (*régional*): brevet ARIPO (GH, GM, KE,
LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), brevet eurasien
(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), brevet européen
(AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,
MC, NL, PT, SE), brevet OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GW, ML, MR, NE, SN, TD, TG).(71) Déposant (*pour tous les États désignés sauf US*): "S.A.
LHOIST RECHERCHE ET DEVELOPPEMENT"
[BE/BE]; Rue Charles Dubois 28, B-1342 Ottignies-Lou-
vain-La-Neuve (BE).

Publiée:

— Avec rapport de recherche internationale.

(72) Inventeurs; et

(75) Inventeurs/Déposants (*pour US seulement*): LAUDET,
Alain [BE/BE]; Rue du Parc 28, B-5000 Namur (BE).
GUEGUEN, Erwan [BE/BE]; Allée du Bois de Bercuît
51, B-1390 Grez-Doiceau (BE).En ce qui concerne les codes à deux lettres et autres abrégia-
tions, se référer aux "Notes explicatives relatives aux codes et
abrégiactions" figurant au début de chaque numéro ordinaire de
la Gazette du PCT.

WO 01/27031 A1

(54) Title: CALCIUM OXIDE PRODUCT AND METHOD FOR MAKING SAME

(54) Titre: PRODUIT A BASE D'OXYDE DE CALCIUM ET SON PROCEDE DE FABRICATION

(57) Abstract: The invention concerns a product based on calcium oxide in the form of rough grains, comprising a protective film coating the grains, based on at least a film-forming compound, which is solid at room temperature and which, when applied on the grains, is in solution or in emulsion in a vaporable aqueous phase. The invention also concerns a method for making said product.

(57) Abrégé: Produit à base d'oxyde de calcium sous forme de grains grossiers, comportant un film protecteur enrobant les grains, à base d'au moins un composé filmogène, qui est solide à la température ambiante et qui, lors de l'application sur les grains, est en solution ou émulsion dans une phase aqueuse évaporable. Aussi revendiqué est le procédé pour la production de ce produit.



1000898597 0164134747

#4.

Docket No. 049149.000002

DECLARATION FOR PATENT APPLICATION

As a sole or joint inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

CALCIUM OXIDE PRODUCT AND METHOD FOR MAKING SAME

and the specification of which ☐ is attached hereto ☒ was filed on 05 October 2000, International Application No. PCT/BE00/00116. U.S. Serial No. 10/089,897

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. 1.56.

The undersigned hereby authorizes the United States attorney or agent named herein to accept and follow instructions from Gevers & Vander Haeghen as to any action to be taken in the United States Patent and Trademark Office regarding this application without direct communication between the United States attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the United States attorney or agent named herein will be so notified by the undersigned.

→

Priority is claimed under 37 C.F.R. 1.55 based upon PCT/BE00/00116 and Belgium Application No. 9900667, filed 08 October 1999.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

4. I appoint **James E. Bradley**, Reg. No. 27,536; **Charles D. Gunter, Jr.**, Reg. No. 29,386; **Andrew J. Dillon**, Reg. No. 29,634; and **Michael Alford**, Reg. No. 48,707, to prosecute this application and to transact all business in the United States Patent and Trademark Office in connection with the application.

Please send all correspondence to:

Charles D. Gunter, Jr.
Bracewell & Patterson, LLP
201 Main Street, Suite 1600
Fort Worth, Texas 76102-3105
(817)332-8143

Inventor's Signature: Alain Laudet

Full Name of Sole or First Inventor: LAUDET, Alain

Date of Signature: 16th April 2002

Residence Address: Rue du Parc 28, - Boîte 4, B-5000 Namur, Belgium BE

Citizenship: Belgium

Post Office Address: Rue du Parc 28, - Boîte 4, B-5000 Namur, Belgium

Erwan Gueguen

Inventor's Signature: ERWAN GUEGUEN

Full Name of Second Inventor: GUEGUEN, Erwan

Date of Signature: 16/04/2002

Residence Address: ~~Allée du Bois de Bereuit 51, B-1390 Grez-Doiceau, Belgium~~ BEX
Rue de Piraumont, 21, B-1495 Villers-la-Ville, Belgium 22/04/02
Citizenship: Belgium D

Post Office Address: ~~Allée du Bois de Bereuit 51, B-1390 Grez-Doiceau, Belgium~~
Rue de Piraumont, 21, B-1495 Villers-la-Ville, Belgium 22/04/02
D

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 049140.000002

In re Application of
Laudet et al.



Serial No.: 10/089,897

Int'l Appl. No.: PCT/BE00/00116

Int'l Filing Date: October 5, 2000

Priority Date: October 8, 1999

For: CALCIUM OXIDE PRODUCT AND METHOD FOR MAKING SAME

ENTITY STATUS STATEMENT

Box: PCT
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicant claims large entity status.

Respectfully submitted,

Charles D. Gunter, Jr.
Reg. No. 29,386
Bracewell & Patterson, LLP
201 Main Street, Suite 1600
Fort Worth, Texas 76102
(817) 332-8143

ATTORNEY FOR APPLICANT

"EXPRESS MAIL" NO.: EV 085544345 US

I hereby certify that this paper or fee is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated below and is addressed to the Hon. Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Date of Deposit:

June 7, 2002

By: